CLAIMS

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A synchronizing method between a Radio Frequency (RF) transmitter and a battery powered RF receiver wherein:

the transmitter transmits first periodic sync signals which are received and used by the receiver to maintain proper synchronization of the receiver with the transmitter during second periodic wake up windows for possible transmissions of data;

the transmitter transmits data during at least some of the second periodic wake up windows for the transmission of data;

the receiver wakes periodically to receive the first periodic sync signals which are used by the receiver to maintain the receiver properly synchronized with the transmitter during the second periodic wake up windows for possible transmissions of data from the transmitter;

the receiver wakes periodically for a short duration at the start of each second periodic wake up window to receive a possible transmission of data, and if no transmission is received goes back to sleep, and if a transmission is received stays awake to receive the full transmission of data, such that the average current consumed by the battery powered receiver to wake periodically to receive the first periodic sync signals to maintain synchronization and to wake periodically to listen for the possible second periodic transmissions of data is less than the average current required to maintain the receiver awake continuously.

2. The method of claim 1, wherein the transmitter transmits the first periodic sync signals over short durations and with a periodicity such that a total of all of the first periodic sync signals over a period of one hour are equal to or less than a total of 2 second on-air time per hour.

3. The method of claim 2, wherein the periodicity of the second periodic wake up windows is 3 seconds, such that the average response time of the battery powered receiver to changes reflected by the transmissions of data is less than 1.5 seconds on average and no greater than 3 seconds in the worst case.

4. The method of claim 3, including controlling clocks in the transmitter and receiver with crystals having a tolerance of greater than 20ppm.

5. The method of claim 4, including operating the receiver with a primary battery cell of less than 2 amp-hour capacity for more than 3 years before the battery is discharged.

6. The method of claim 5, operated in a security alarm system having an AC powered control panel with the transmitter which transmits periodic RF messages on the present status of the security alarm system to a plurality of battery powered reduced display monitors, each having a said battery powered receiver, to provide a display of the current status of the security alarm system.

7. The method of claim 1, wherein the periodicity of the second periodic wake up windows is 3 seconds, such that the average response time of the battery powered receiver to changes reflected by the transmissions of data is less than 1.5 seconds on average and no greater than 3 seconds in the worst case.

8. The method of claim 1, including controlling clocks in the transmitter and receiver with crystals having a tolerance of greater than 20ppm.

9. The method of claim 1, including operating the receiver with a primary battery cell of less than 2 amp-hour capacity for more than 3 years before the battery is discharged.

10. The method of claim 1, operated in a security alarm system having an AC powered control panel with the transmitter which transmits periodic RF messages on the present status of the security alarm system to a plurality of battery powered reduced display monitors, each having a said battery powered receiver, to provide a display of the current status of the security alarm system.

11. A synchronizing system between a Radio Frequency (RF) transmitter and a battery powered RF receiver wherein:

the transmitter includes means for transmitting first periodic sync signals which are received and used by the receiver to maintain proper synchronization of the receiver with the transmitter during second periodic wake up windows for possible transmissions of data;

the transmitter includes means for transmitting data during at least some of the second periodic wake up windows for the transmission of data;

the receiver includes means for waking periodically to receive the first periodic sync signals which are used by the receiver to maintain the receiver properly synchronized with the transmitter during the second periodic wake up windows for possible transmissions of data from the transmitter;

the receiver includes means for waking periodically for a short duration at the start of each second periodic wake up window to receive a possible transmission of data, and if no transmission is received goes back to sleep, and if a transmission is received stays awake to receive the full transmission of data, such that the average current consumed by the battery powered receiver to wake periodically to receive the first periodic sync signals to maintain synchronization and to wake periodically to listen for the possible second periodic transmissions of data is less than the average current required to maintain the receiver awake continuously.

12. The system of claim 11, wherein the transmitter includes means for transmitting the first periodic sync signals over short durations and with a periodicity such that a total

of all of the first periodic sync signals over a period of one hour are equal to or less than a total of 2 second on-air time per hour.

13. The system of claim 12, wherein the means for transmitting during the second periodic wake up windows transmits with a periodicity of 3 seconds, such that the average response time of the battery powered receiver to changes reflected by the transmissions of data is less than 1.5 seconds on average and no greater than 3 seconds in the worst case.

14. The system of claim 13, wherein clocks in the transmitter and receiver include crystals having a tolerance of greater than 20ppm.

15. The system of claim 14, wherein the receiver includes a primary battery cell of less than 2 amp-hour capacity which operates for more than 3 years before the battery is discharged.

16. The system of claim 15, in a security alarm system having an AC powered control panel with the transmitter which transmits periodic RF messages on the present status of the security alarm system to a plurality of battery powered reduced display monitors, each having a said battery powered receiver, to provide a display of the current status of the security alarm system.

17. The system of claim 11, wherein the means for transmitting during the second periodic wake up windows transmits with a periodicity of 3 seconds, such that the average response time of the battery powered receiver to changes reflected by the transmissions of data is less than 1.5 seconds on average and no greater than 3 seconds in the worst case.

18. The system of claim 11, wherein clocks in the transmitter and receiver include crystals having a tolerance of greater than 20ppm.

19. The system of claim 11, wherein the receiver includes a primary battery cell of less than 2 amp-hour capacity which operates for more than 3 years before the battery is discharged.

20. The system of claim 11, in a security alarm system having an AC powered control panel with the transmitter which transmits periodic RF messages on the present status of the security alarm system to a plurality of battery powered reduced display monitors, each having a said battery powered receiver, to provide a display of the current status of the security alarm system.